

with an otolithe. In some cases the author has traced one of the terminal filaments of the antennal nerve into this auditory sac.

These organs are always of the same construction, and differ only in size; but their magnitude bears no relation to that of the insect. Their number is very variable: in the antenna of the Libellulidæ the author has found only four, whilst in the Lamellicorn Beetles there is an immense number of them. Their position on the antenna is very variable, but always in relation to the form of the organ.

In some Myriapoda the author has observed a remarkable arrangement. About the middle of the antenna of the *Scutigera coleoptrata* here is a sort of knot or swelling formed by two joints, between which there is a small sac receiving a branch of the antennal nerve. In *Julus terrestris* there are two analogous structures placed side by side.

The author's experiments on hearing in Insects have rarely furnished him with incontestable results, but they nevertheless lead him to believe that the organs above mentioned are the seat of this sense. Should this prove to be the case, he calls attention to the remarkable fact that these animals possess not only compound eyes, but also compound ears.—*Comptes Rendus*, August 30, 1858, p. 368.

Why does the Queen Bee lay an Unfecundated Egg in the Drone-Cells, and a Fecundated Egg in those of the Workers and Queens? Is there in this, on the part of the Queen, an Intelligent or Instinctive Act? By Dr. KÜCHENMEISTER.

The author, assuming the truth of the results put forward by Von Siebold in his remarkable essay on "Parthenogenesis," namely that the drone-producing eggs of the Hive-Bee are unimpregnated, and those of the queens and workers impregnated, proceeds to give what may be called a mechanical explanation of the facts.

He says that in the Wasps and Bees the seminal receptacle is placed so that the semen has to travel a considerable distance to reach the oviduct. In this case, there are three causes which may facilitate the flow of semen:—

1. The fulness of the receptacle.
2. A pressure acting upon the bottom of the receptacle from behind and below, forwards and upwards.
3. The action of a muscular apparatus situated in the upper half of the receptacle.

At the moment when the eggs destined to produce males are going to be laid, the queen is placed upon the combs without sensibly curving her body, and the egg glides without effort into the cell; whilst in laying the eggs which are to furnish queens, she turns her head outwards, and twists the abdomen to make it enter the cell. The margin of the cell exerting a pressure upon the bottom of the seminal receptacle, together with the contortion of the body, explain in this case the ejaculation of the semen and the fecundation of the eggs.

For the fecundation of the eggs destined to furnish workers, it is sufficient, in a fertile and vigorous queen, that there should be a simple pressure of the parenchyma upon the seminal receptacle: when the store of semen begins to be exhausted, the muscular apparatus probably comes into play.

When the queen deposits an egg in a large cell intended for a male, the edge of the cell exerts no pressure upon the abdomen, or the pressure is exerted only above the seminal receptacle; the latter therefore is not raised, and the oblique position of the ejaculatory canal in relation to the oviduct prevents the ejaculation. Thus, according to the author, it is to the difference in the diameter of the cells that the production of the different sexes in the Hive-Bee is due.—*Moleschott's Untersuchungen; Bibl. Univ. de Genève*, September 1858, p. 94.

On the Development and Propagation of the Trichocephalus dispar and Ascaris lumbricoides. By C. DAVAINE.

1. The *Trichocephalus dispar* occurs so commonly in the cæcum of man, that the author calculates that in Paris one-half of the inhabitants are infested by it. The development of this worm has not been observed, and its mode of transmission is quite unknown. The eggs are frequently evacuated with the fæces. The repeated examination of eggs found in the contents of the intestine of corpses, or in the evacuations of patients, leads the author to conclude that *these ova undergo no development in the human intestine, and that they are always expelled in the condition in which they escape from the body of the mother.* The author therefore attempted to obtain the development of the ova in water, but several times without success. At the end of September, 1857, he collected a great quantity of these ova, and washed them for several days, until the water containing the ova was limpid and destitute of any odour. The liquid was renewed from time to time, and the ova were examined with the microscope every week. A certain number underwent alteration; others remained uninjured, but without presenting any trace of development. At the beginning of April, after six months' watching, the vitellus, in some of these ova, collected into a rounded mass and acquired some consistence, as was proved by crushing the ova. Some days afterwards, the vitellus in many ova underwent segmentation into two, and then into four parts; the segmentation then followed the ordinary course, and, at the beginning of May, many of the yelks had acquired a mulberry-like appearance. From this time no change was observed until the 12th of June, when some of the ova contained a well-formed embryo, recognizable by its movements. This embryo, which to a certain extent possesses the form of the adult, tapers gently from behind forwards; its length is about $\frac{1}{10}$ millim.

2. On the 8th of October, 1857, the author collected numerous ova of *Ascaris lumbricoides* by washing the fæces of a child who had passed several of these worms. These ova were preserved in pure water, and examined from time to time, like the preceding. For six months no change was observed; but on the 14th of April several of them had undergone segmentation into two, and some into four parts, whilst the greater number exhibited no change. On the 30th of April, segmentation had taken place in all, but in various degrees: in some the vitellus represented a small mammillated sphere; on the 5th of May this had become reniform, and on the 7th the embryo